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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,007	11/21/2000	Xi Jiang	705835US1RAF	9318

7590 09/08/2003

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EXAMINER
D AGOSTA, STEPHEN M

ART UNIT	PAPER NUMBER
2683	

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/718,007	JIANG, XI	
	Examiner	Art Unit	
	Stephen M. D'Agosta	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-38 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-38 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 23.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to ***a single paragraph on a separate sheet within the range of 50 to 150 words***. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **All drawings are missing reference numbers** . A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

Claims 1-3, 6-7, 17, 21, 24 and 26 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. **Claims 1, 3, 7, 17, 21, 24 and 26**: The specification teaches switching between a plurality of service providers, not "communication options". The examiner believes the term "service provider" would be a better description of what the system is

switching between since communication options can be interpreted as the actual type of communication being used, ie. voice, data, etc.. A re-write is required.

b. **Claims 2 and 6**: How can one of the plurality of "wireless" communication options not use any "wireless" communication (?). The examiner has interpreted this to mean the mobile can connect to a wired network. A re-write is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 17-18, 21, 28-33 and 36-38 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu US 5,825,759 and further in view of Jones US 6,363,323 or Bruggemann US 5,493,291 and Andersson et al. US 5,530,917 (hereafter Liu, Anderson and Jones or Bruggemann).

As per **claims 1, 17, 21, 28-29 and 38**, Liu teaches a method of selecting which of a plurality of wireless communication options will be used by a mobile device, comprising the step of selecting which wireless communication option to use based on a location of the mobile communication device on a route and the availability for use of each of the plurality of wireless communication options along the route (abstract).

But is silent on the route (eg. being known beforehand).

Jones teaches tracking a vehicle on a predetermined schedule/route based on GPS tracking and cellular system (abstract and figure 1) while **Bruggemann** teaches transponders suitable for a navigation system for motor vehicles in which a predetermined route, or desired destination, is stored in a navigation apparatus of each vehicle by means of an input device. In the respective transponders, in this case, directional information and/or street names, can be stored which are read by navigational apparatus of vehicles and compared with desired data (C5, L61-67 to C6, L1-2).

With further regard to claim 28, Liu teaches cellular networks which are known in the art to have cell base stations/towers near roadways and highways (Liu also discloses data connectivity to the Internet, figure 18, which can be via wireless LAN technology (IEEE 802.11) which provides high bandwidth and limited geographical coverage). Since Liu teaches mobile data networking and connectivity to the Internet (figure 18), the content provider would respond back to the mobile user via an appropriate base station for full duplex communication via the TCP/IP protocol.

With further regard to claim 29, Liu teaches a system that uses a predictive mobility algorithm to determine where a mobile user is likely to be (which reads on determining a predicted time when the vehicle will be able to communicate with an info-fueling station* having a known/predictable position) [abstract].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the route is known beforehand, to provide means for inputting the route a user is to take so the device can track progress and inform the user if they are off course.

With further regard to claim 38, Liu **is silent on** a movable base station.

Andersson teaches base stations can be fixed or mobile (C20, L61-65) as can be wireless LAN systems if mounted on a mobile object.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the info-fueling station/base station is movable, to provide means for the station to be moved/relocated as needed for optimal RF communications.

*the examiner interprets an "info-fueling station" as a generic server that is connected to a localized high-speed wireless network (such as an IEEE802.11 network).

As per **claim 2**, Liu teaches claim 1 wherein one of the networks is a wired network (figure 18 and 19 show connectivity to wired networks, eg. Internet and LANs/WANs/MANs).

As per **claim 17**, Liu teaches a method of storing data in a database that is indicative of coverage areas for wireless communication options along a route that a mobile communication device is traversing, comprising the steps of:

a) storing boundary locations of the coverage areas for the wireless communication options along the route in the database

b) periodically obtaining updated information concerning the coverage areas of the wireless options as the mobile device traverses the route (abstract).

but is silent on

c) updating the database with updated information AND where the boundary locations are boundary locations on streets of the route

Jones teaches the storage device (eg. database) includes historical travel data pertaining to the vehicle schedule along the route. The historical travel data comprises a plurality of predetermined location values corresponding respectively with a plurality of locations along a predetermined route of travel of the mobile vehicle (C3, L7-32).

Bruggemann teaches described transponders can be set in the roadway pavement for a navigation system for motor vehicles in which a predetermined route, or

desired destination, is stored in a navigation apparatus of each vehicle by means of an input device. In the respective transponders, in this case, directional information and/or **street names**, can be stored which are read by navigational apparatus of vehicles passing over and compared with desired data (C5, L61-67 to C6, L1-2).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the database is updated with boundary/street locations, to provide means for the user to know when they are approaching a boundary/handoff and the street name associated with said boundary.

As per **claim 18**, Liu teaches claim 17 wherein the step of updating includes determining whether the updated information is for a present location,

a) if the updated information is for a present location, then storing the updated information

b) if the updated information is for a present location, comparing the updated information updating the stored information if updated information is different from the stored information (abstract and C2, L11-43 teaches knowledge of multiple networks).

But is silent on a database.

Jones teaches the storage device (eg. database) includes historical travel data pertaining to the vehicle schedule along the route. The historical travel data comprises a plurality of predetermined location values corresponding respectively with a plurality of locations along a predetermined route of travel of the mobile vehicle. The predetermined location values are respectively associated with time values stored in the storage device. The processor uses one of the plurality of predetermined location values (along with its associated time value), a current time, and a current location value received from the sensor to determine whether the vehicle is off schedule. If the vehicle is off schedule by at least a predefined amount, the processor causes the communications device to transmit a message to a remote computer, associated with a tracking system or an advance notification system, indicating that the vehicle is off schedule by a specified time and/or distance (C3, L7-32).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that a database is used, to provide means to store all pertinent route/option data in a commercial database software package.

As per **claim 30**, Liu teaches claim 29 **but is silent on** wherein said info-fueling station has a fixed position relative to vehicles.

Bruggemann teaches roadway transponders that can allow the vehicle to determine it's location and the location of fixed objects (eg. traffic speed sign of figure 2, a transponder is built into a roadway pavement near a speed limit traffic sign. Information corresponding to that of the traffic sign 17 is stored in the memory 8 of the transponder 1. If a vehicle 13 with a coil antenna 14 drives over the transponder 1 then energy is transferred to the transponder 1 via the coil antenna 14 so that it, the transponder, is activated and sends out its stored, or memorized, information as a digital code signal. This energy transfer can be caused by a changing magnetic field at the transponder. The transponder information is received by the coil antenna 14 so that,

via the read-out device 4 and the analyzing circuit 15, the information of the traffic sign 17 is shown on the indicating device) [C3, L50-67 to C4, L1-2].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that an info-fueling station has a fixed position, to provide means for the station to always be at a known, fixed location the user can roam to for data.

As per **claim 31**, Liu teaches claim 29, **but is silent on** an information request identifies said info-fueling station.

Liu does teach a predictive mobility algorithm that can determine where the mobile is likely to be.

Bruggemann teaches roadway transponders that can provide pinpoint accuracy as to the location of the user [C3, L50-67 to C4, L1-2]. While Bruggemann teaches a passive transponder that must be driven over, one skilled in the art would also use an information request and/or a GPS query for location information).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that an information request is used to identify the info-fueling station, to provide means for manual (and/or automatic) determination of a station.

As per **claim 32**, Liu teaches claim 29, **but is silent on** the wireless network identifies said info-fueling station.

Liu does teach a predictive mobility algorithm that can determine where the mobile is likely to be.

Bruggemann teaches roadway transponders that can provide pinpoint accuracy as to the location of the user AND fixed objects such as traffic speed signs, etc. and one skilled in the art would also provide means for identifying any other object (eg. info-fueling station) [C3, L50-67 to C4, L1-2].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the wireless network identifies the info-fueling station, to provide manual (or automatic) determination of the location/identity of said info-fueling station via the wireless network.

As per **claim 33**, Liu teaches claim 29, **but is silent on** the wireless device being coupled to an on-board communication network in said vehicle.

Bruggemann teaches an on-board communication network/system in a vehicle (abstract and figure 2).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the wireless device is onboard a vehicle, to provide a system for use within a car/vehicle.

As per **claim 36**, Liu teaches claim 29 **but is silent on** a movable info-fueling station.

Andersson teaches base stations can be fixed or mobile (C20, L61-65) as can be wireless LAN systems if mounted on a mobile object.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the info-fueling station is movable, to provide means for the station to be moved/relocated as needed for optimal RF communications.

As per **claim 37**, Liu teaches claim 36 **but is silent on** moving each mobile info-fueling station to a location to optimize performance of info-fueling communication.

Liu teaches a cellular network which is known in the art as a RF network comprised of many base stations that are planned and tested for optimized performance and low co-interference. One skilled in the art would locate any RF device in a position such that it's performance is optimized for communication with users.

The examiner takes Official Notice that cellular service providers have engineers that work to determine optimal positions for RF cell sites.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that each fueling station is moved to a location for optimal performance, to provide interference-free communication to users.

Claims 3-11 and 14 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones and Bruggemann and further in view of Lyons US 6,282,412 (hereafter Lyons).

As per **claims 3 and 7**, Liu teaches a mobile device with method for selecting which in a plurality of wireless communication options will be used by the mobile device comprising the steps of:

c. determining where on the route the mobile device is as it traverses the route (abstract)

d. determining whether to switch from a first one of the wireless communication options presently being used to a second one when the device approaches a boundary of a coverage area (abstract)

e. switching from the first wireless option to a second one when the mobile crosses the boundary if the determination was made to switch to the second option (abstract).

But is silent on

a. storing in the mobile device route information that is indicative of the route that the mobile will be traversing

b. storing in the mobile information indicative of coverage areas for each of the plurality of wireless options along the route the mobile will traverse.

Liu does teach the system having knowledge of the coverage areas the mobile is near (C1, L58-67 to C2, L10). **Lyons** teachs a receiver with memory card to store information concerning a determined number of broadcast stations that serve at least a portion of a user-designated geographic area, and which have a program style that suits a designated user preference. Information corresponding to each station's operating or carrier frequency and an associated service coverage area, is stored by the card (C2, L33-44).

Jones teaches tracking a vehicle on a predetermined schedule/route based on GPS tracking and cellular system (abstract and figure 1) while **Bruggemann** teaches transponders suitable for a navigation system for motor vehicles in which a predetermined route, or desired destination, is stored in a navigation apparatus of each vehicle by means of an input device. In the respective transponders, in this case, directional information and/or street names, can be stored which are read by navigational apparatus of vehicles and compared with desired data C5, L61-67 to C6, L1-2).

With regard to claim 7, Liu teaches knowledge of network services and resources (eg. coverage areas) the mobile user is near or moving toward (abstract) **but is silent on** a database. **Jones** teaches the storage device (eg. database) includes historical travel data pertaining to the vehicle schedule along the route. The historical travel data comprises a plurality of predetermined location values corresponding respectively with a plurality of locations along a predetermined route of travel of the mobile vehicle. The predetermined location values are respectively associated with time values stored in the storage device. The processor uses one of the plurality of predetermined location values (along with its associated time value), a current time, and a current location value received from the sensor to determine whether the vehicle is off schedule. If the vehicle is off schedule by at least a predefined amount, the processor causes the communications device to transmit a message to a remote computer, associated with a tracking system or an advance notification system, indicating that the vehicle is off schedule by a specified time and/or distance (C3, L7-32).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that route/coverage data is stored in the mobile AND a database is used, to provide means for storing all possible data regarding route/coverage information for a trip route.

As per **claim 4**, Liu teaches a plurality of wireless networks (C2, L11-35 teaches service outside a service area, eg. other network).

As per **claim 5**, Liu teaches at least one of the wireless networks having a plurality of service levels (figures 20-23, 25a/25b).

As per **claim 6**, Liu teaches claim 2 wherein one of the networks is a wired network (figure 18 and 19 show connectivity to wired networks, eg. Internet and LANs/WANs/MANs).

As per **claim 8**, Liu teaches claim 7 and a "soft data structure handover" (abstract) which reads on the claimed limitation (connection to second system before dropping connection to first system).

As per **claim 9**, Liu teaches claim 7 **but is silent on** wherein the database stores coverage areas options along the route traversed includes storing boundary locations of the coverage areas where boundary locations stored are limited to boundary locations that are on streets of the route.

Bruggemann teaches described transponders can be set in the roadway pavement for a navigation system for motor vehicles in which a predetermined route, or desired destination, is stored in a navigation apparatus of each vehicle by means of an input device. In the respective transponders, in this case, directional information and/or **street names**, can be stored which are read by navigational apparatus of vehicles passing over and compared with desired data (C5, L61-67 to C6, L1-2).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that the database stores data includes boundary locations/streets, to provide means for knowing when a handoff may occur in regard to an actual street location.

As per **claim 10**, Liu teaches claim 9 **but is silent on** further including obtaining updated information concerning the coverage areas of the wireless communication options and updating the database with updated information.

Liu teaches a cellular system which inherently is aware of it's own coverage areas/cells.

Bruggemann teaches transponders that are set in pavement for vehicle navigation (Cxx, Lxx). One skilled in the art knows that as new pavement transponders are added to new pavement locations, the system will receive this new data and update it's database.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that updated data can be received and stored, to provide means for newly received data to be stored in the device/system as the user roams.

As per **claim 11**, Liu teaches claim 10 obtaining updated information concerning the coverage areas of the wireless options includes obtaining this information from providers of the wireless options (abstract - Liu teaches cellular systems which are inherently aware of their coverage areas/cells).

Claims 12-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones, Bruggemann and Lyons and further in view of Bottomley US 6,473,602 (hereafter Bottomley).

As per **claim 12**, Liu teaches claim 10 **but is silent on** wherein the step of obtaining updated information includes monitoring signal strengths of the wireless options as it passes through the coverage areas for the wireless options and developing updated information concerning coverage areas for the wireless options based on the monitored signal strengths of the wireless options.

Bottomley teaches measuring signal strength for determining a hand-off condition which can be used on several access technologies/systems (ie. FDMA, TDMA and CDMA) [title and abstract].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that signal strength is monitored, to provide means for handing off when one system's strength begins to fade and another system's strength increases.

As per **claims 13 and 14**, Liu teaches claim 12 wherein the step of updating includes determining whether the updated information is for a present location,

a) if the updated information is for a present location, then storing the updated information

b) if the updated information is for a present location, comparing the updated information updating the stored information if updated information is different from the stored information (abstract and C2, L11-43 teaches knowledge of multiple networks).

But is silent on a database.

Jones teaches the storage device (eg. database) includes historical travel data pertaining to the vehicle schedule along the route. The historical travel data comprises a plurality of predetermined location values corresponding respectively with a plurality of locations along a predetermined route of travel of the mobile vehicle. The predetermined location values are respectively associated with time values stored in the storage device. The processor uses one of the plurality of predetermined location values (along with its associated time value), a current time, and a current location value received from the sensor to determine whether the vehicle is off schedule. If the vehicle is off schedule by at least a predefined amount, the processor causes the communications device to transmit a message to a remote computer, associated with a tracking system or an advance notification system, indicating that the vehicle is off schedule by a specified time and/or distance (C3, L7-32).

With regard to claim 14, the examiner interprets primary functions of a database as providing the ability to 1) store data, 2) can be searched to see if new data to be stored exists or not, 3) update previously stored data with new data. Hence, Jones' storage device/database reads on claim 14 (also ref. commercially available database software such as Microsoft Access/SQLServer, IBM DB-2, Oracle, etc.).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that a database is used and can store/update database entries as new data is received, to provide means for data to be stored in a commercially available software database and be manipulated as needed by the user/system.

Claims 15 and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones and Bruggemann and further in view of Wieczorek et al. US 6,125,278 (hereafter Wieczorek).

As per **claim 15**, Liu teaches claim 14 **but is silent on** updating stored information comprises shifting the stored information toward the updated information by a parameter and replacing stored information with the shifted stored information.

Wieczorek teaches a system that stores and uses the unit's location history which reads on the claimed limitation (eg. present data is replaced with newer data and present data is moved to different storage location).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that new data is stored and previous data is moved/stored, to keep the most current data in memory while maintaining a historical record as well.

As per **claim 19**, Liu teaches claim 18 **but is silent on** updating stored information comprises shifting the stored information toward the updated information by a parameter and replacing stored information with the shifted stored information.

Wieczorek teaches a system that stores and uses the unit's location history which reads on the claimed limitation (eg. present data is replaced with newer data and present data is moved to different storage location).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that new data is stored and previous data is moved/stored, to keep the most current data in memory while maintaining a historical record as well.

Claims 16 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones and Bruggemann and further in view of Lee IEEE paper (hereafter Lee).

As per **claim 16**, Liu teaches claim 15 **but is silent on** the step of updating the stored information doing so with a running average method wherein the stored information is the running average of initial information and subsequent update information.

Lee teaches wireless communications and the use of a running average that uses data both from the past (known) and future (unknown) as well as calculations for weighting the data (page 753, abstract and Paragraph 1 to Paragraph 2).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that a running average is used, to provide means for properly calculating/measuring signal strength in a mobile system.

As per **claim 20**, Liu teaches claim 18 **but is silent on** the step of updating the stored information doing so with a running average method wherein the stored information is the running average of initial information and subsequent update information.

Lee teaches wireless communications and the use of a running average that uses data both from the past (known) and future (unknown) as well as calculations for weighting the data (page 753, abstract and Paragraph 1 to Paragraph 2).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that a running average is used, to provide means for properly calculating/measuring signal strength in a mobile system.

Claims 22-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones, Bruggemann and Andersson and further in view of Mueller et al. US 6,185,413 (hereafter Mueller).

As per **claim 22**, Liu teaches claim 21 **but is silent on** determining cost of each wireless system.

Mueller teaches a mobile station with memory device in which a number of available applications are stored which can relate to different "carriers," i.e., mobile radio network systems or service providers within a single mobile radio network. A selection device of the mobile station calculates expected charges for a desired connection for each of these applications which are being considered for the transmission connection. Based upon the calculations, the most cost-efficient application for the desired transmission is selected. The actual transmission of the communication data for the base station is then carried out on the basis of this application (Abstract).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that cost is determined for each system, to provide means for the user to know the cost associated with each system it can connect with.

As per **claim 23**, Liu teaches claim 21 and determining which wireless system to use includes making the decision based upon performance level of each wireless system (figures 15-17 teach latency reduction, performance gain relating to mobility density).

But is silent on cost.

Mueller teaches a mobile station with memory device in which a number of available applications are stored which can relate to different "carriers," i.e., mobile radio network systems or service providers within a single mobile radio network. A selection device of the mobile station calculates expected charges for a desired connection for each of these applications which are being considered for the transmission connection. Based upon the calculations, the most cost-efficient application for the desired transmission is selected. The actual transmission of the communication data for the base station is then carried out on the basis of this application (Abstract).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that cost is determined, to provide means for the user to know the cost associated with each system it can connect with.

Claims 24-27 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Mueller and Wieczorek.

As per **claims 24 and 26**, Liu teaches a method of providing a uniform content access layer application program interface for application programs that use mobile communications provided by a mobile device (abstract and figures 18-25b) **but is silent on** comprising the steps of:

a) providing a database accessible by the application program

b) storing in the database information concerning wireless options that are available for use by the mobile communication device as it traverses a route

c) the application program deciding its requirements for data transfer via wireless communication based on the information about wireless communications stored in the database.

Mueller teaches a mobile station having a number of applications that chooses a wireless network based on least cost and a database (abstract and figure 1, #18). **Wieczorek** teaches a method for optimizing resource allocation that chooses a wireless network based on loading conditions/data transfer capability (abstract). One skilled in the art would provide for Mueller's program to also decide based on system loading.

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that an application program can access a database and decide requirements for communication, to provide means for the application to determine which network(s) can provide the optimal data transfer.

As per **claims 25 and 27**, Liu teaches claim 24 wherein the information about the wireless options stored in the database includes information concerning performance (figure 15-17) **but is silent on** cost.

Mueller teaches a mobile station having a number of applications that chooses a wireless network based on least cost (abstract).

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that cost is determined, to provide means for the user to know the cost associated with each system it can connect with.

Claim 34 rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Jones, Bruggemann and Andersson and further in view of Bottomley.

As per **claim 34**, Liu teaches claim 29 and the ability to pre-arrange for communications when a mobile user roams freely (abstract) which reads on the entire claim except for the fact of **being silent on** signal strength.

Bottomley teaches measuring signal strength for determining a hand-off condition which can be used on several access technologies/systems (ie. FDMA, TDMA and CDMA) [title and abstract].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that signal strength is used, to provide means of knowing when a handoff will occur based on signal strength.

Claim 35 rejected under 35 U.S.C. 103(a) as being unpatentable over Lie, Jones, Bruggemann and Andersson and further in view of Baker US 6,505,046 (hereafter Baker).

As per **claim 35**, Liu teaches claim 29 **but is silent on** the wireless network routes previously stored requests for information to said vehicle through said info-fueling station.

Baker teaches a short message service center is a specialized computer system that accepts short message requests from various network entities. The message requests are stored and forwarded to various subscribers when they become available in the network (i.e., they turn their phone on) [C6, L56-61].

It would have been obvious to one skilled in the art at the time of the invention to modify Liu, such that previously stored requests are routed, to provide means for storing (and not deleting) requests that cannot be delivered.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

1. Marlevi et al. US 5,572,221 teaches detecting/predicting motion of mobile.
2. Walgers et al. US 6,298,302 teaches optimal route from traffic messages.
3. Bahl et al. US 6,385,454 teaches resource management in cell network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7493 for regular communications and 703-746-7493 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist on 703-306-0377.

SMD
8-26-07

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